

FIG. 1

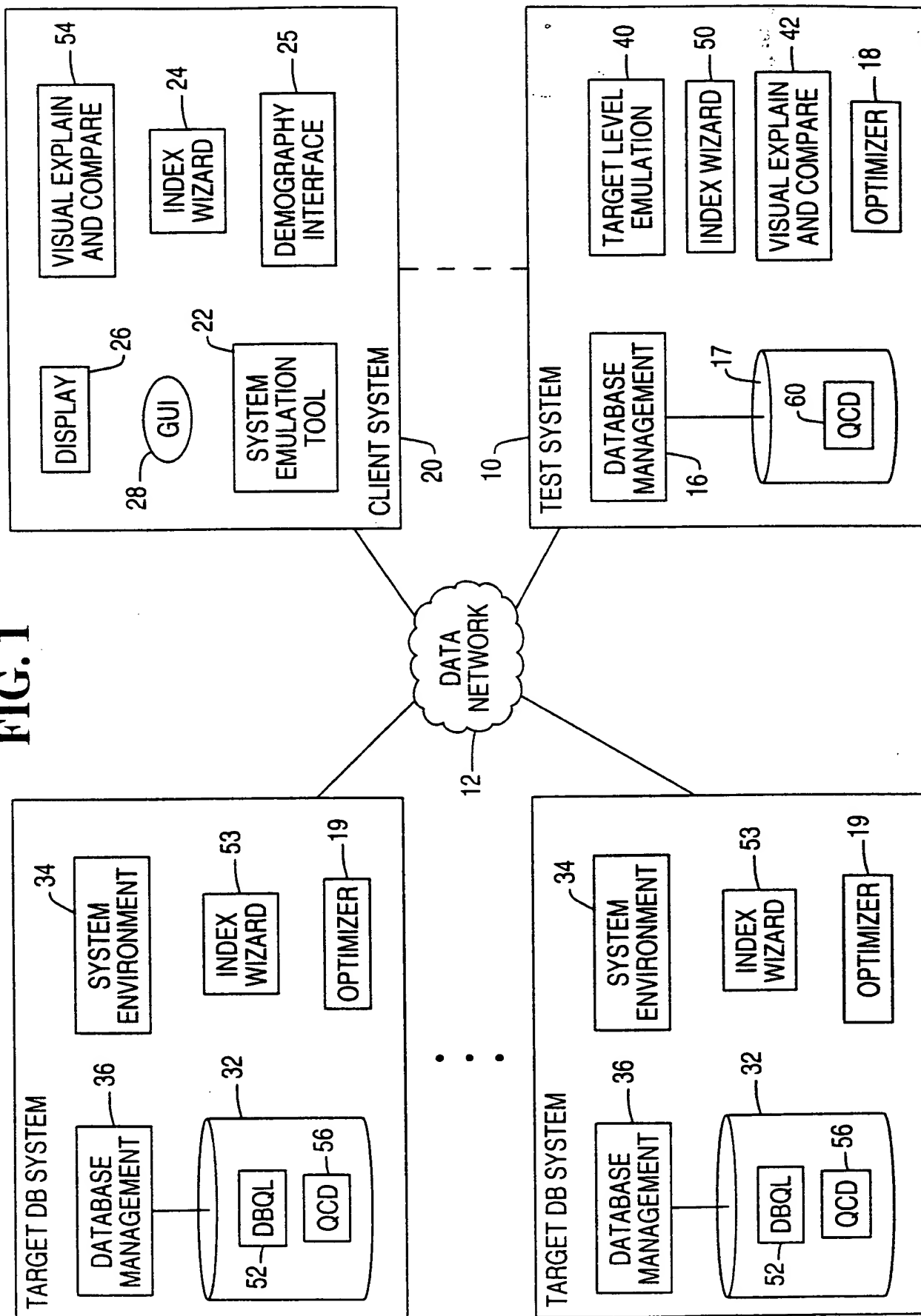


FIG. 2

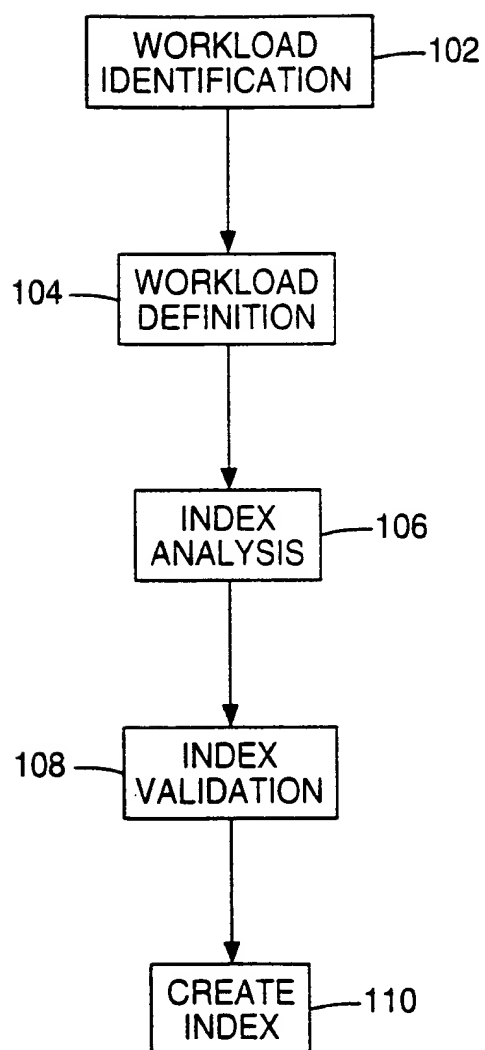


FIG. 3

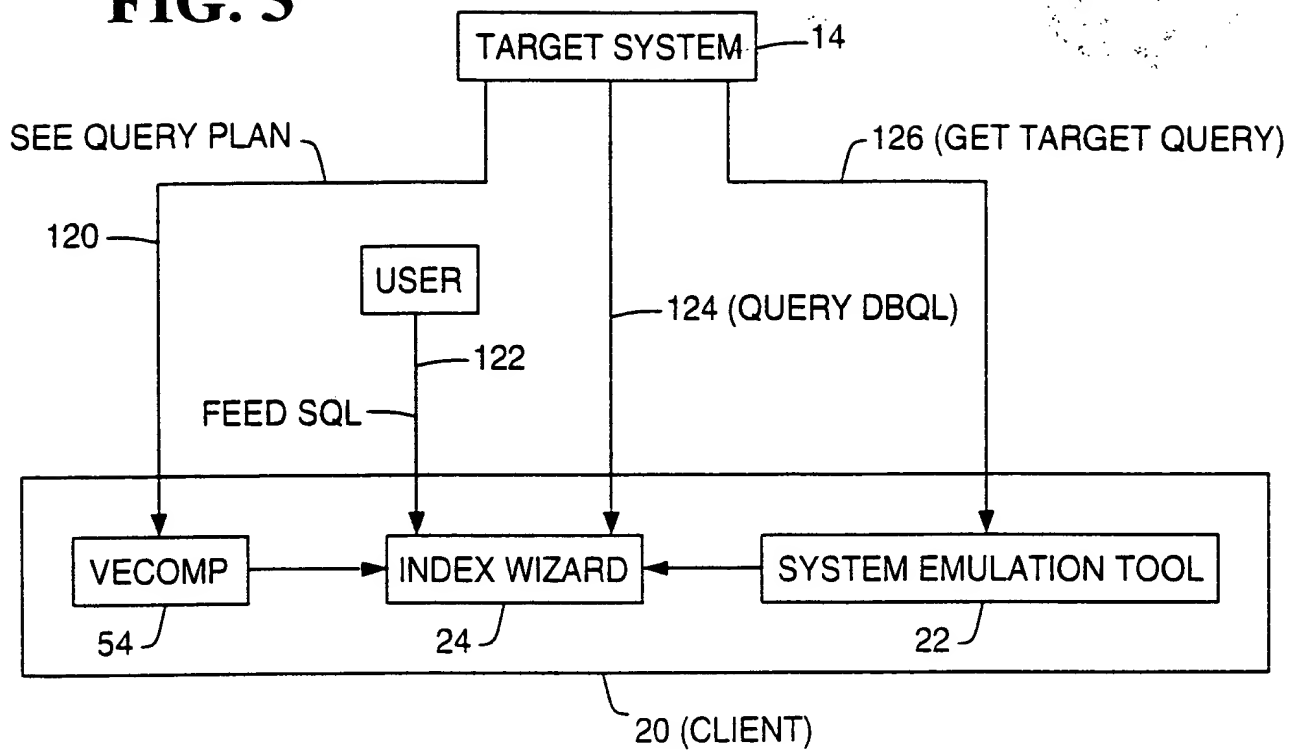


FIG. 4

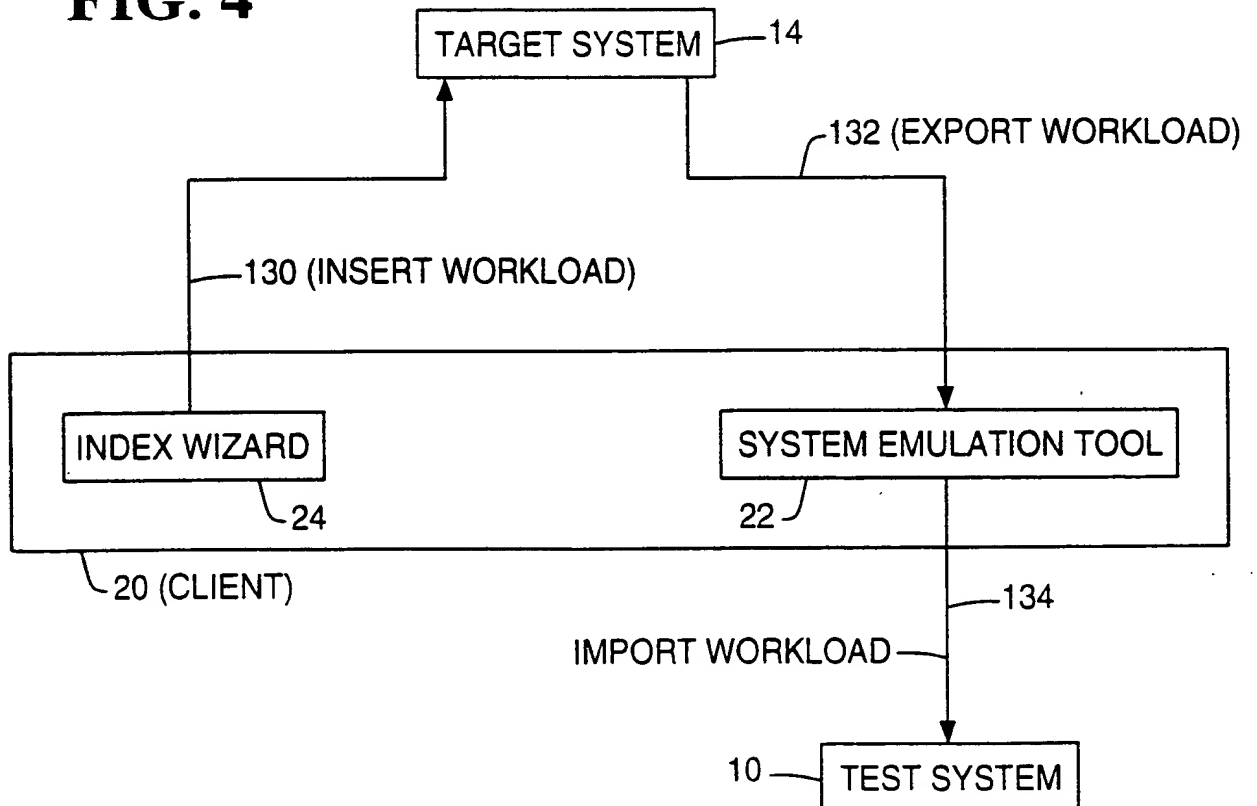


FIG. 5

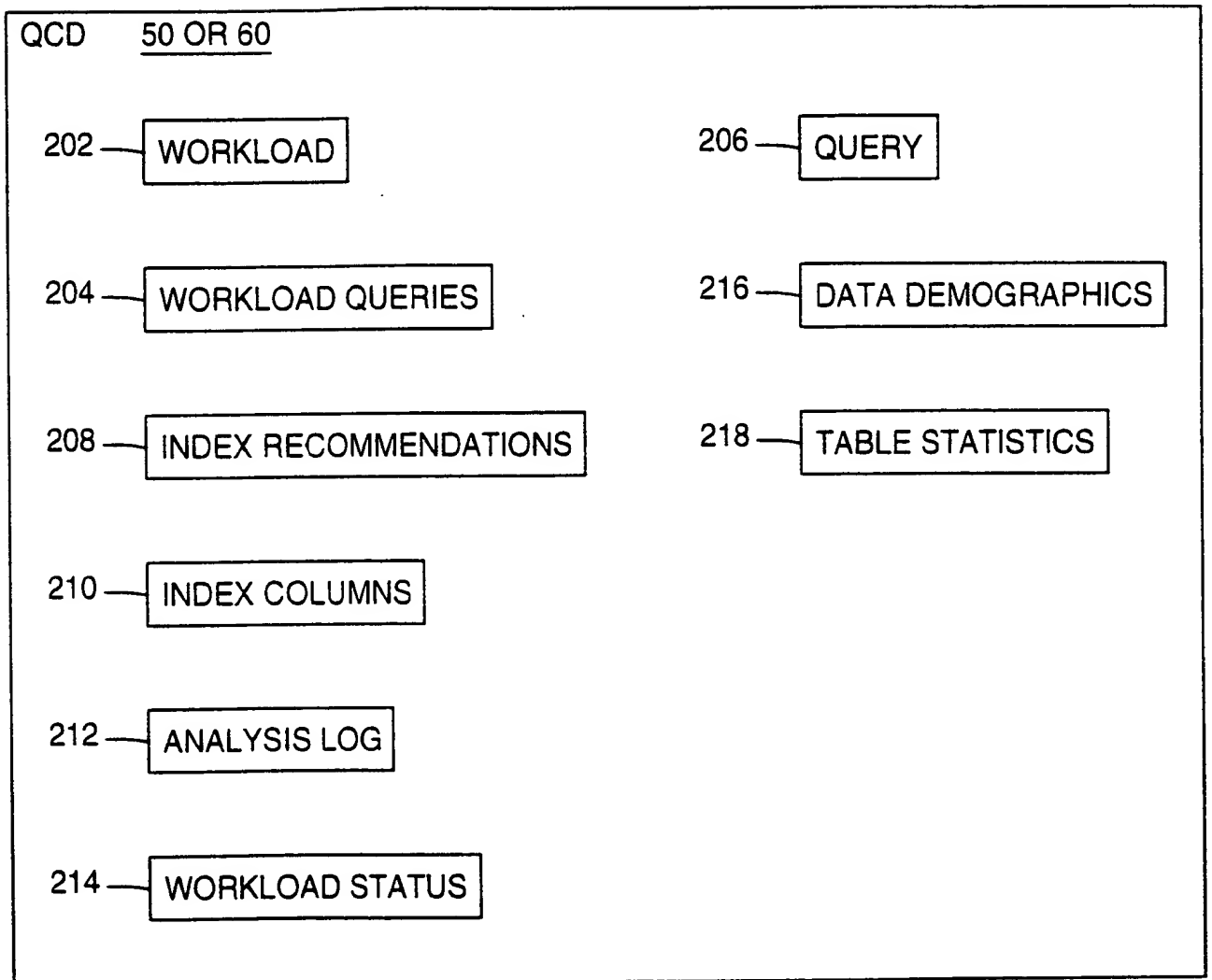


FIG. 6

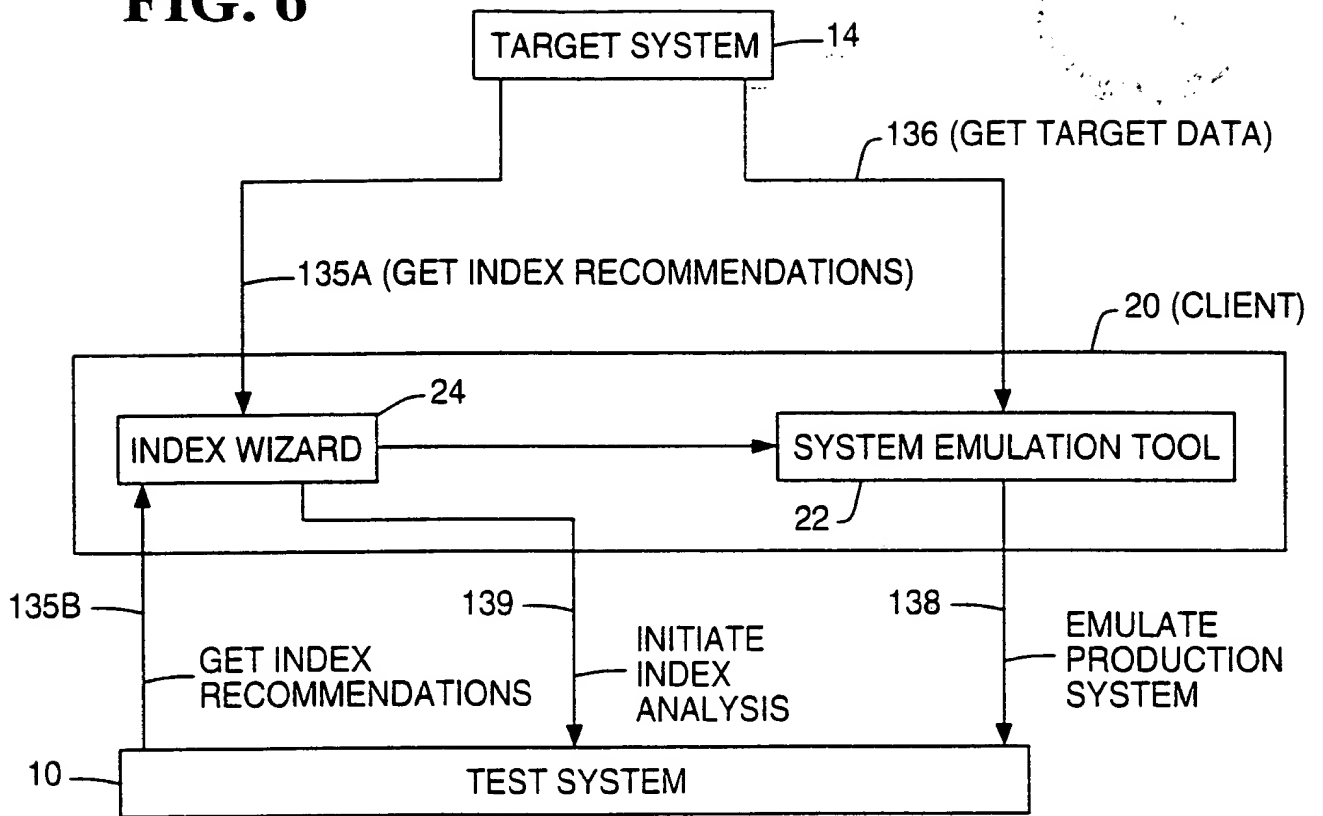


FIG. 8

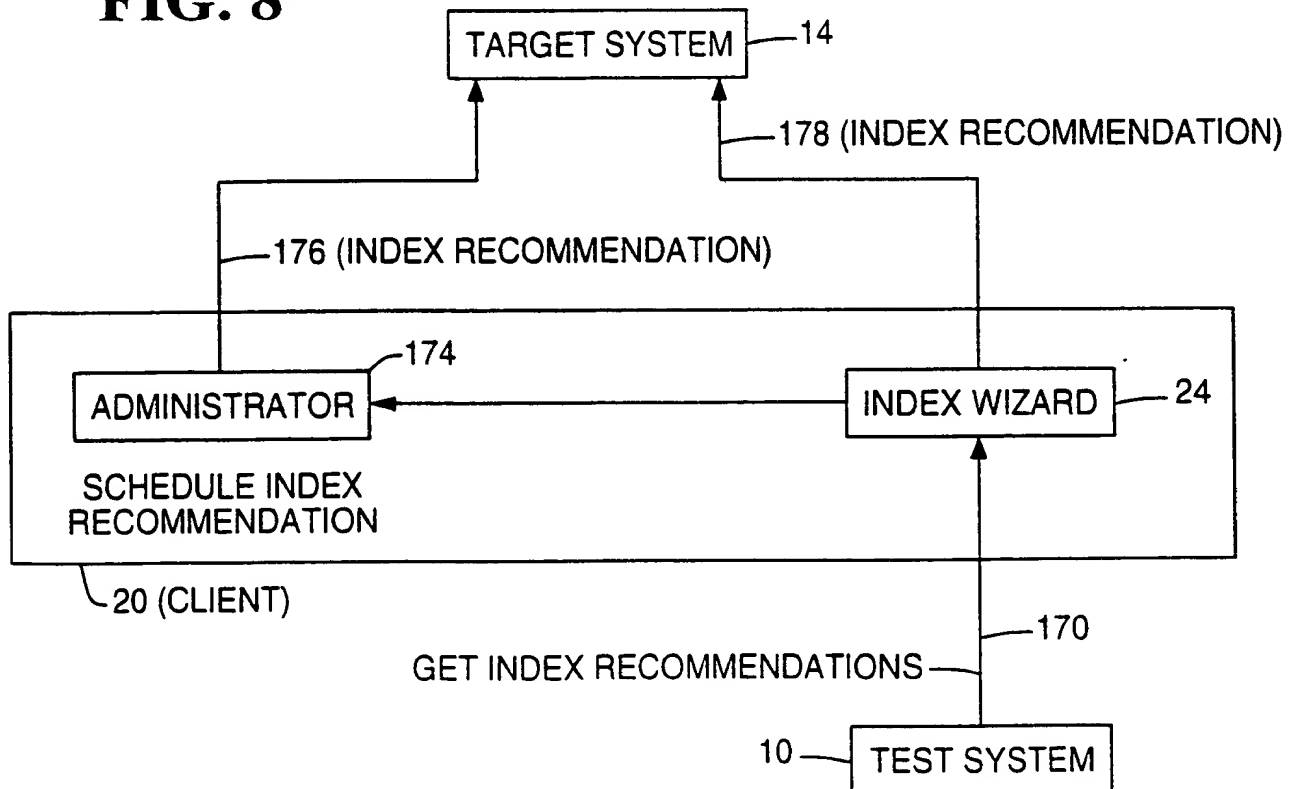


FIG. 7

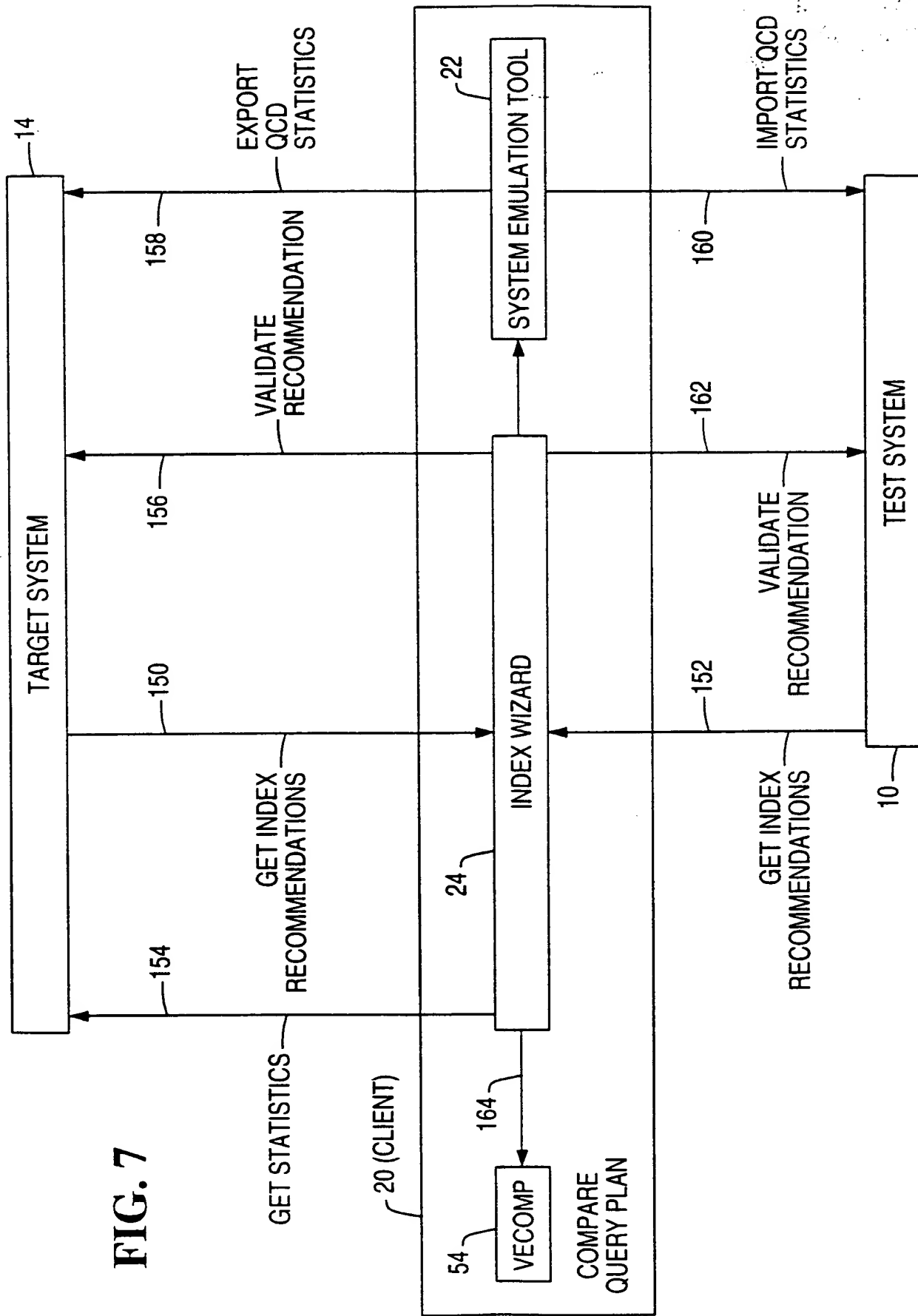


FIG. 9

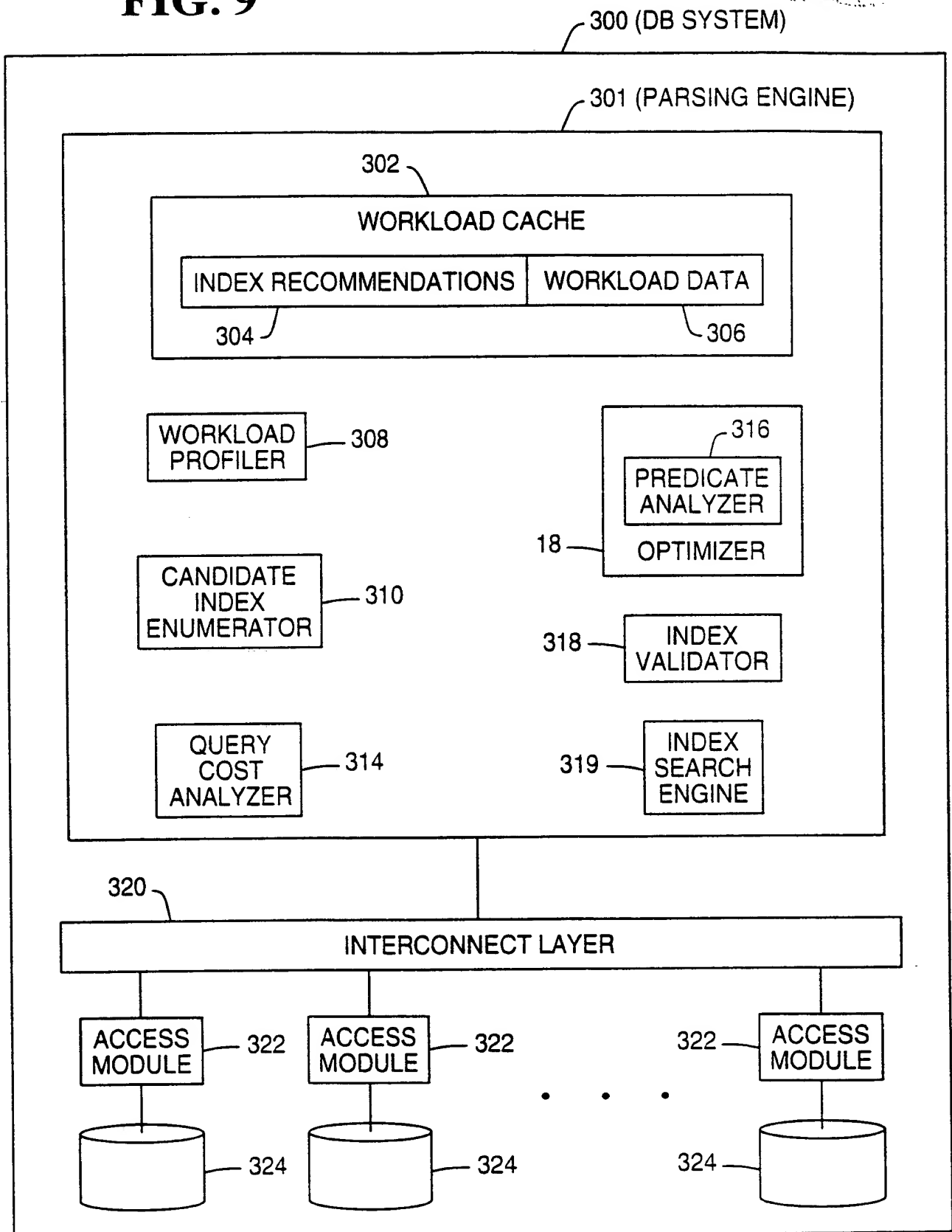


FIG. 10

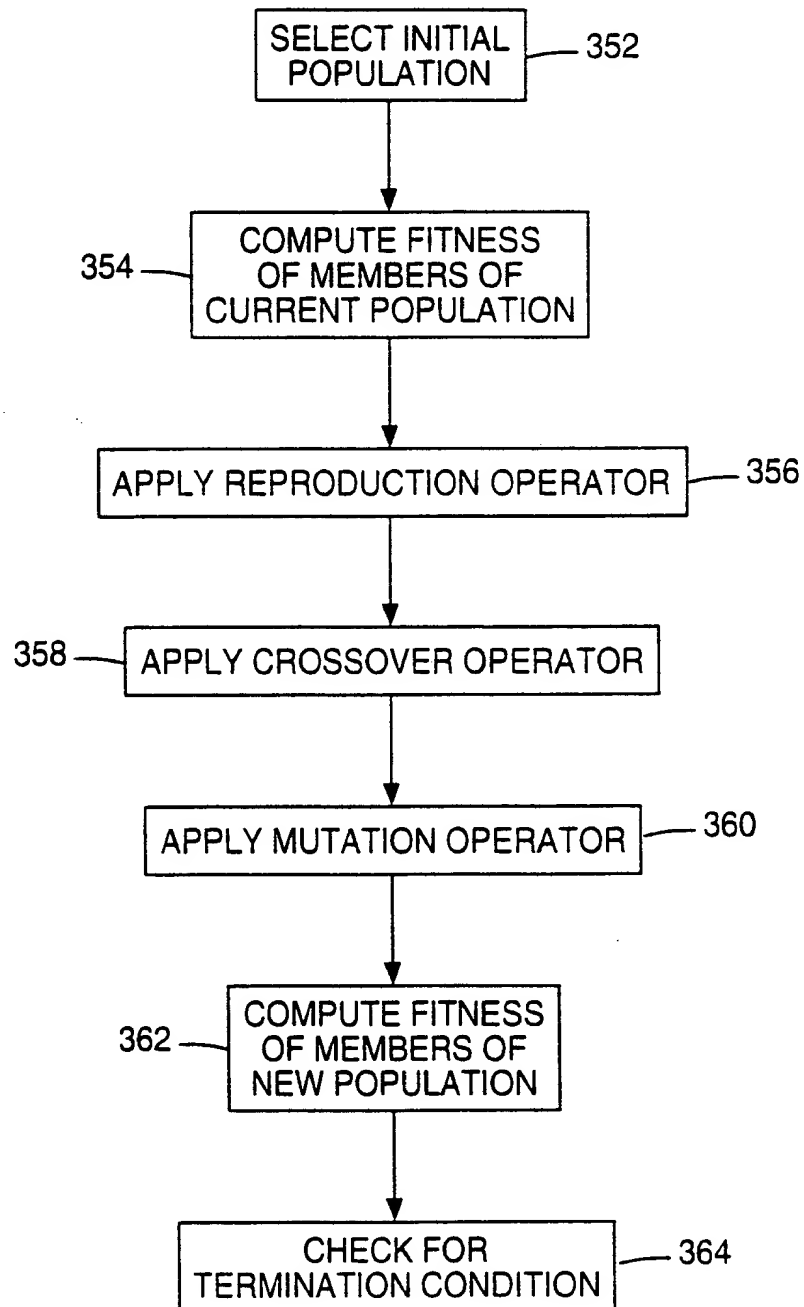
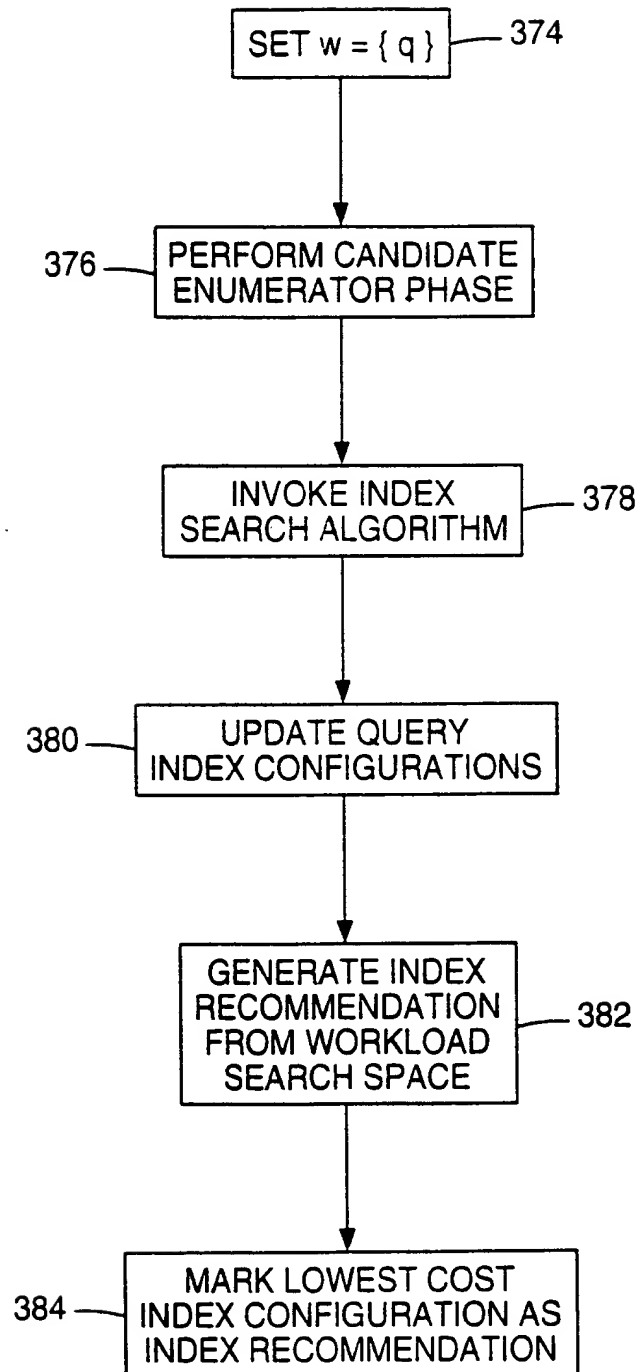


FIG. 11



400



Idle

FIG. 13

400

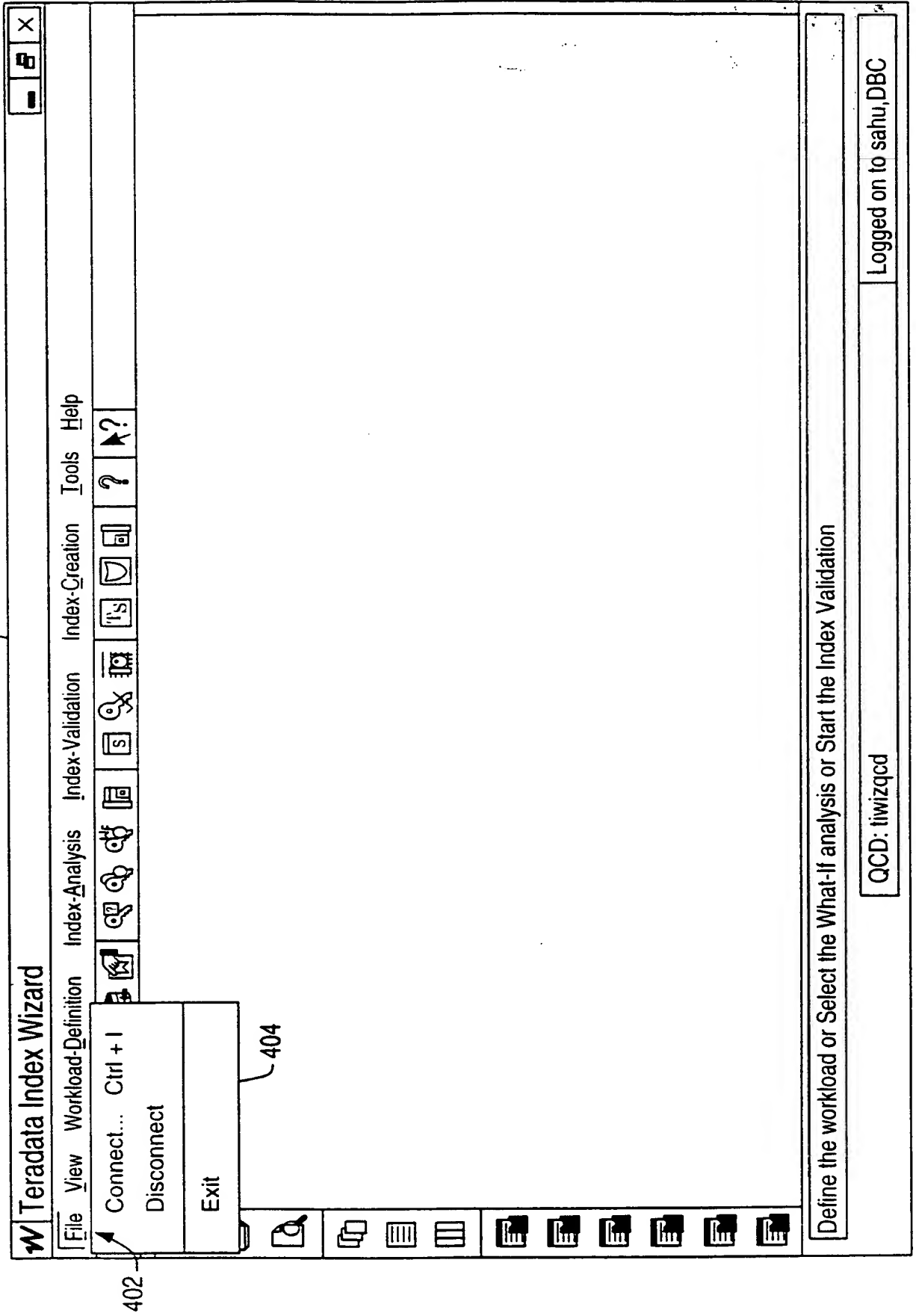


FIG. 14

400

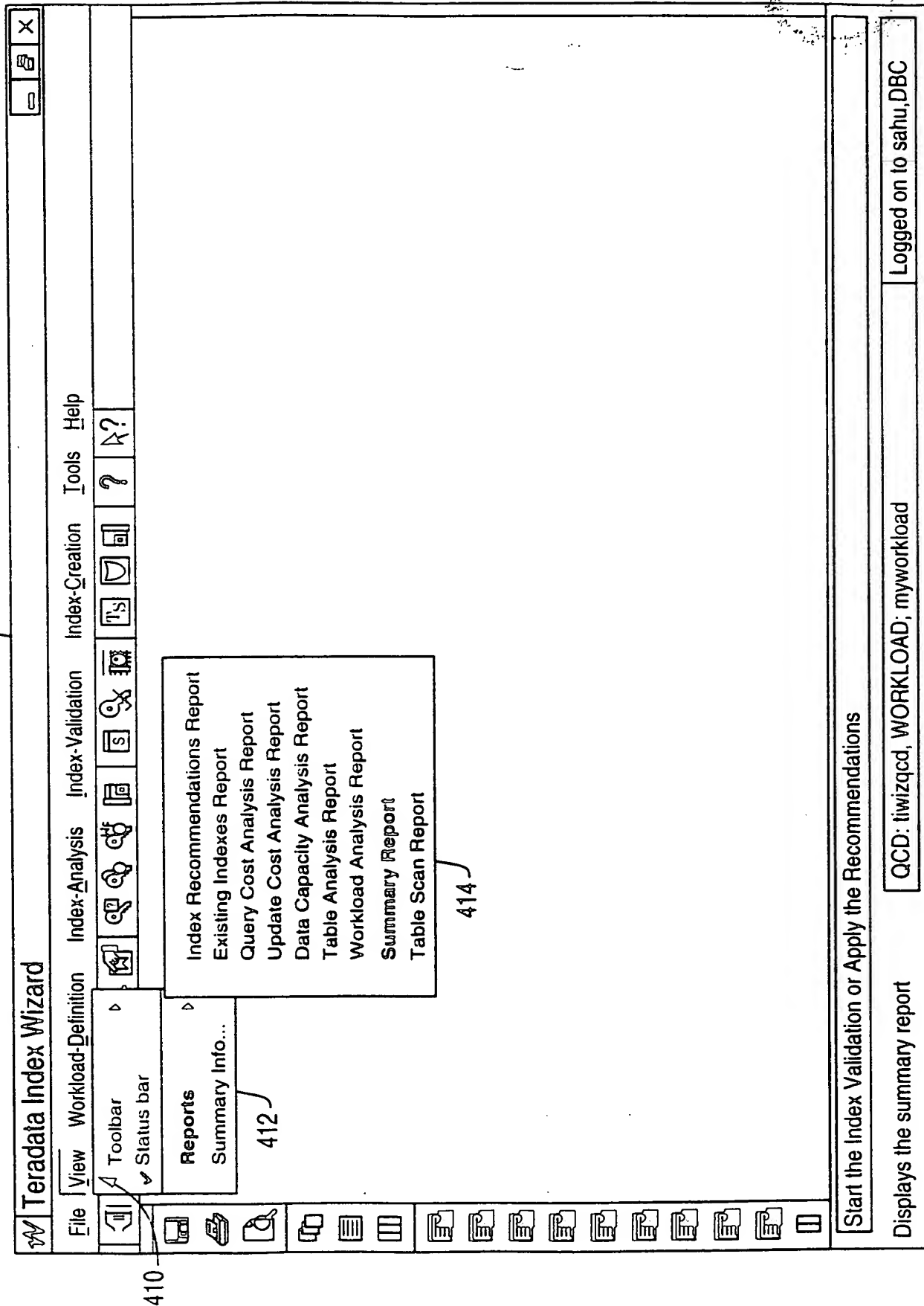
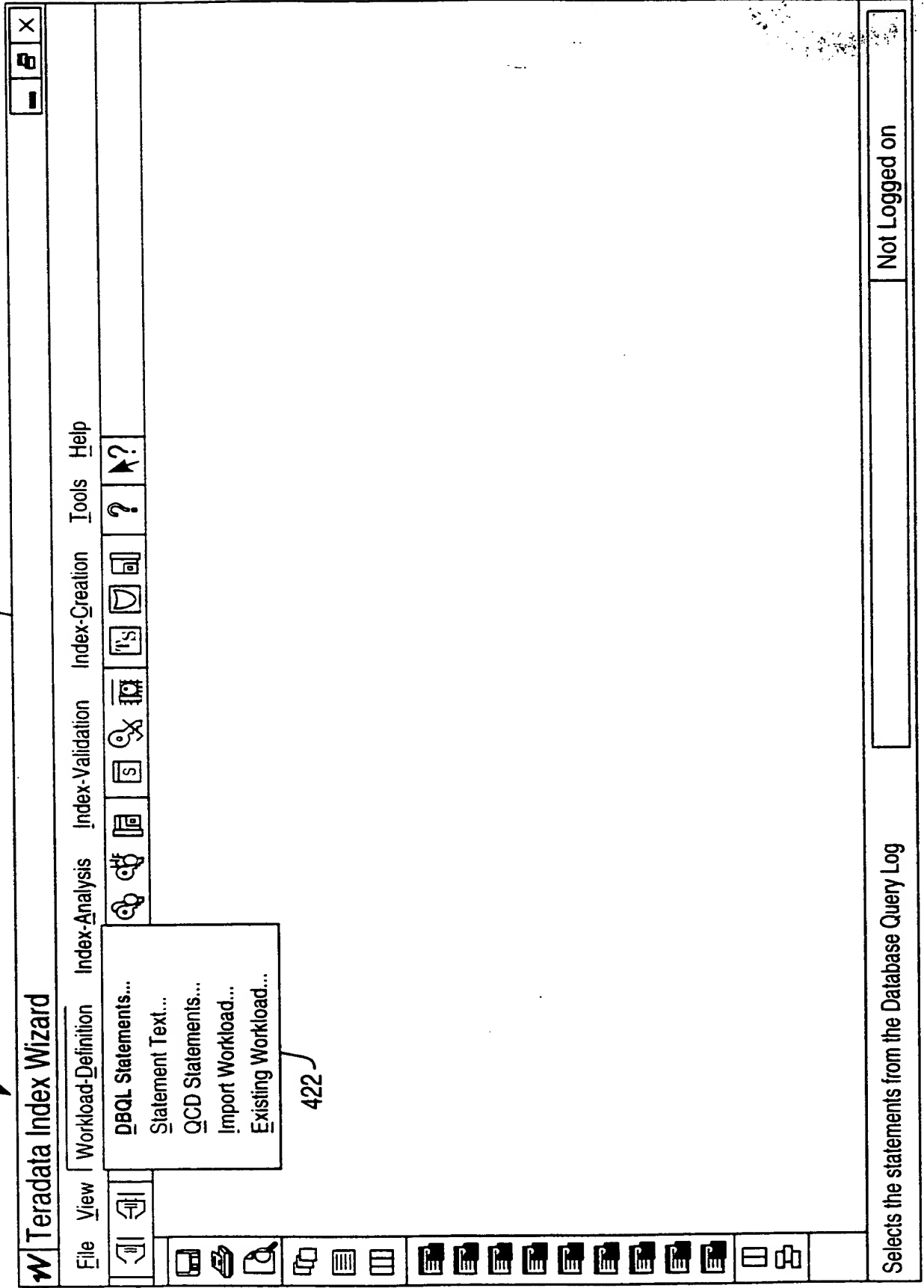


FIG. 15

420

400

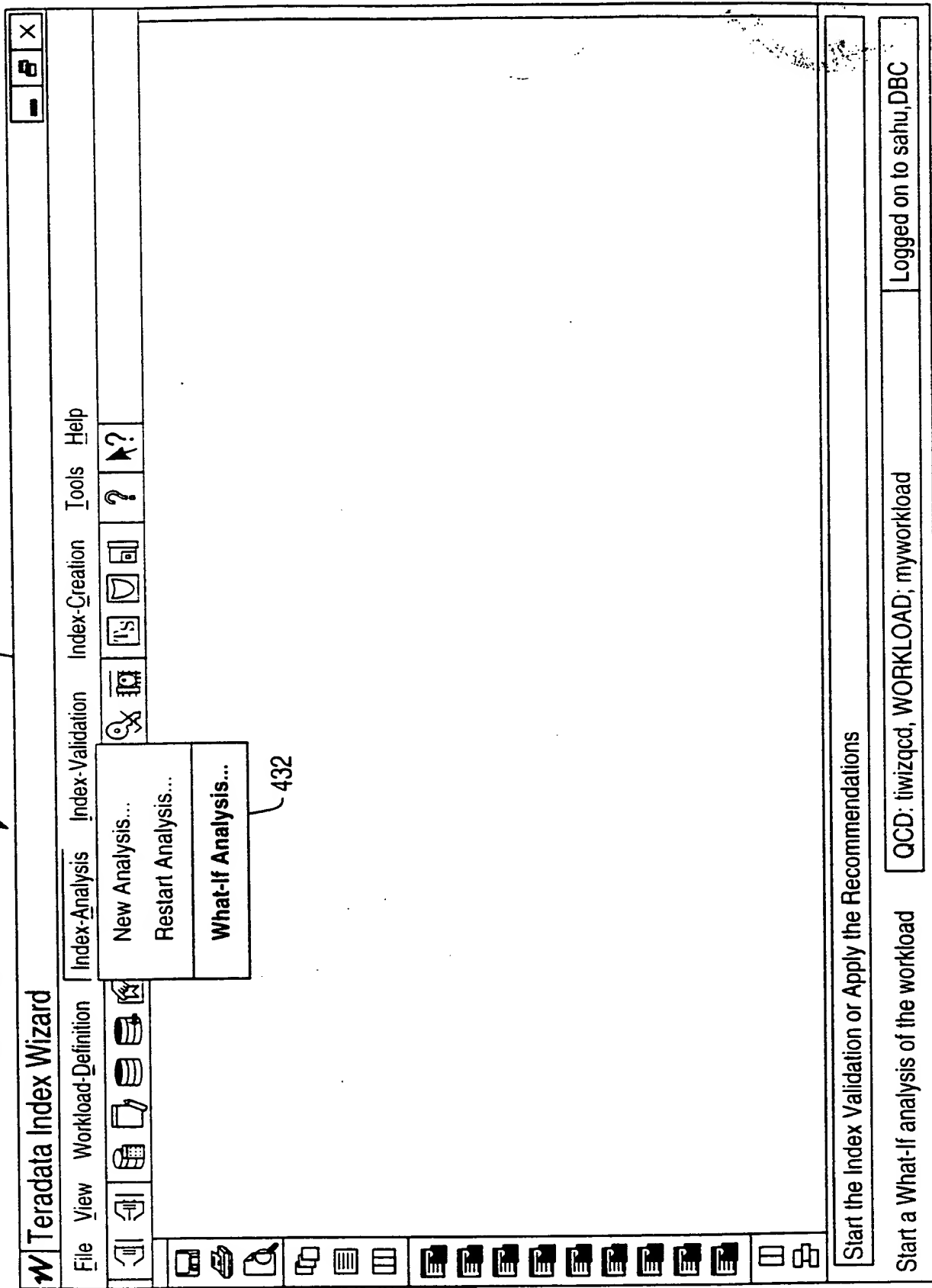


422

FIG. 16

430

400



432

FIG. 17

440

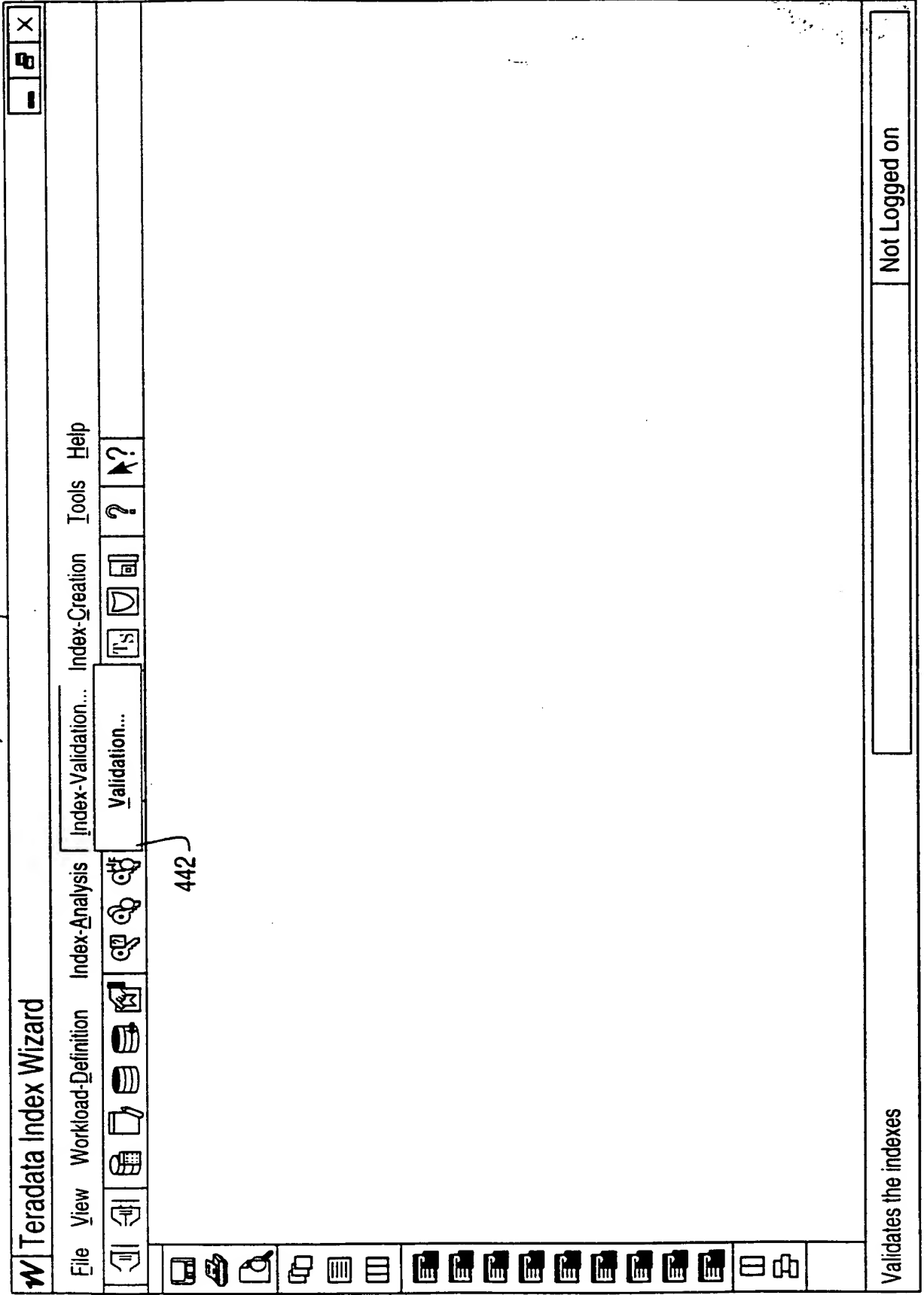


FIG. 18

450

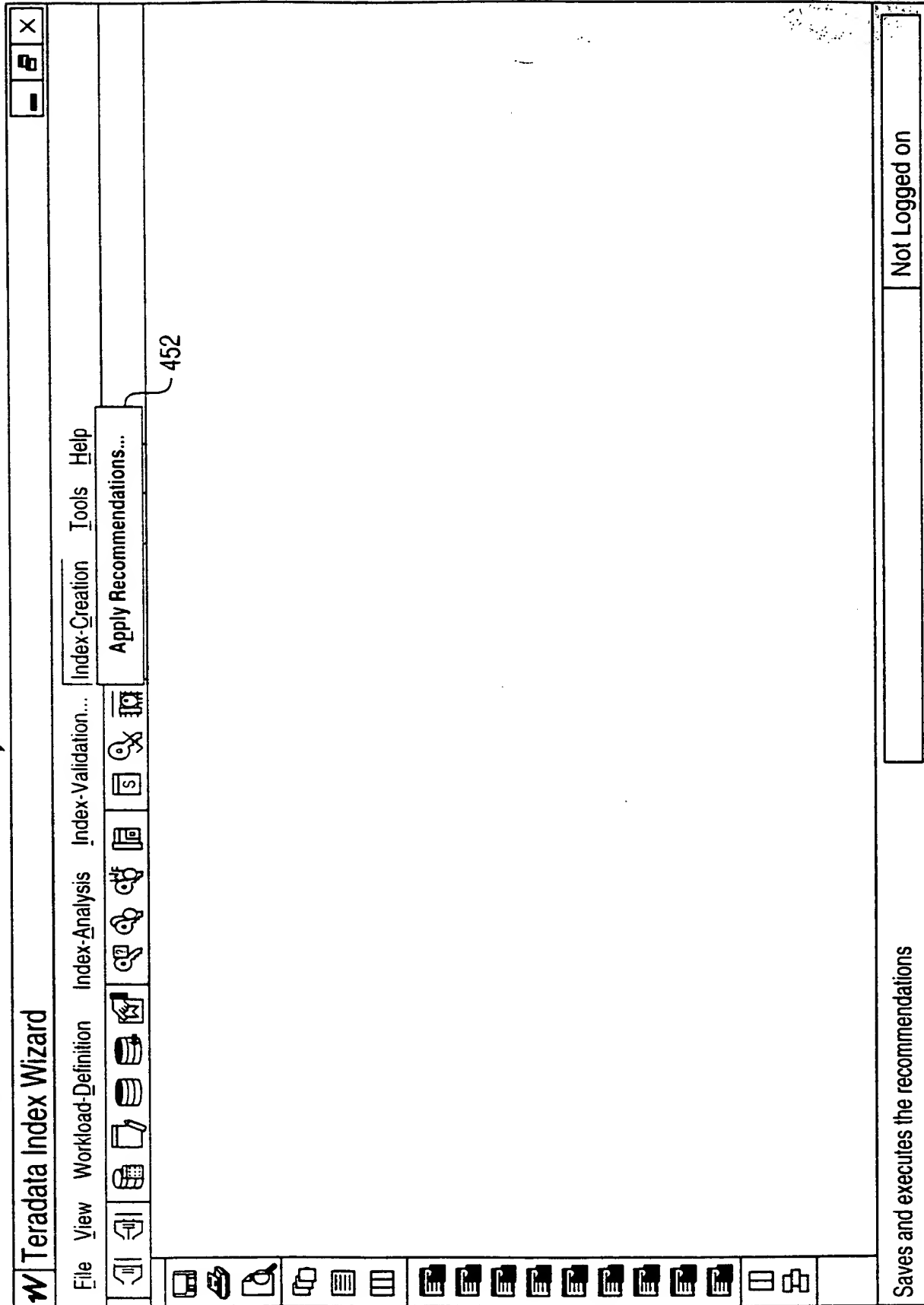
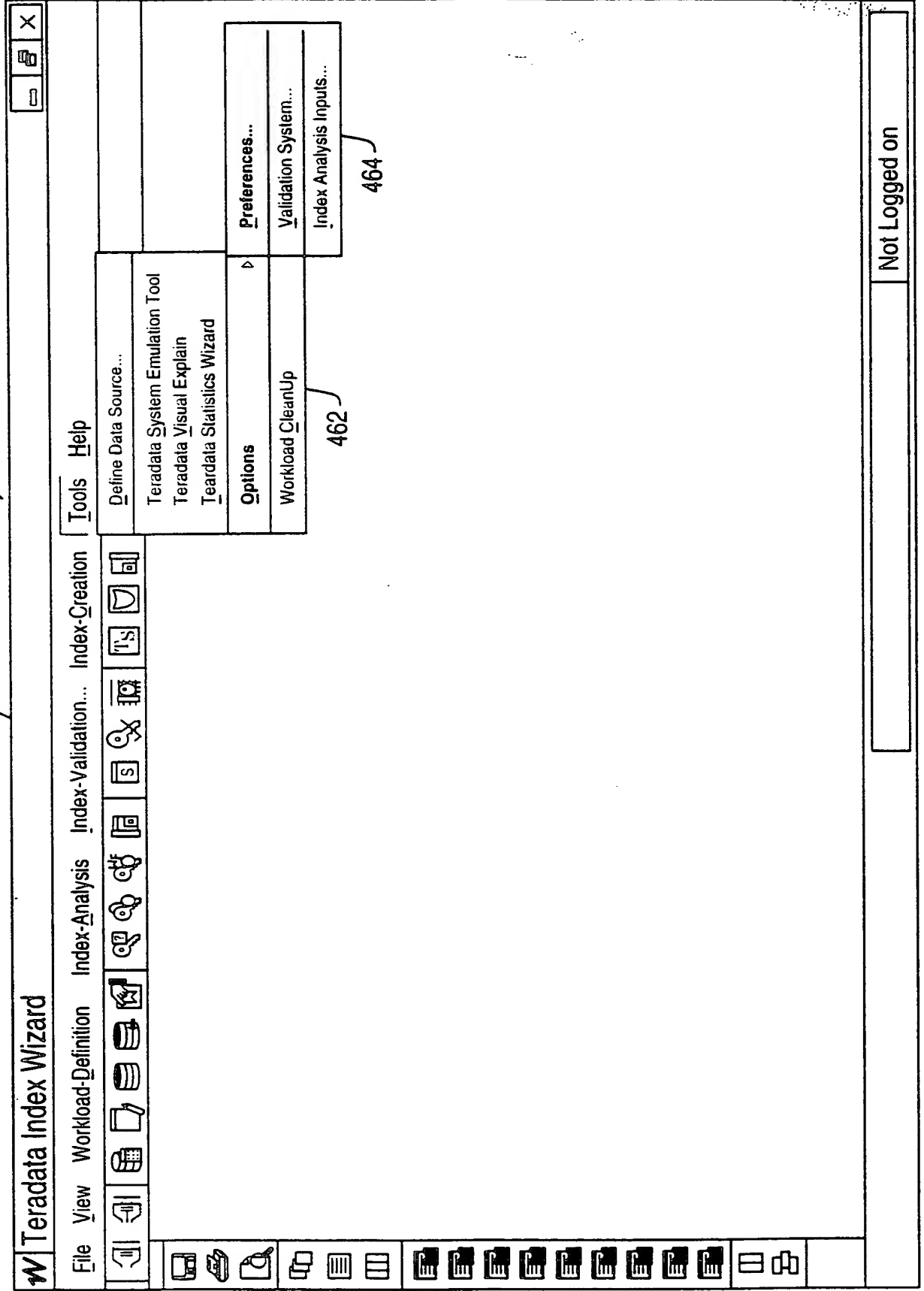


FIG. 19

400

460



462

464

FIG. 20

















| | ICON | DESCRIPTION |
|-----|---|--|
| 800 |  | TO LOGON TO THE TERADATA RDBMS SERVER |
| 801 |  | TO LOG OFF FROM THE TERADATA RDBMS SERVER |
| 802 |  | TO SELECT THE STATEMENTS FROM THE DBQL |
| 803 |  | TO ENTER THE SQL STATEMENTS OR SELECT THEM FROM MORE THAN ONE FILE |
| 804 |  | TO SELECT THE SQL STATEMENTS FROM THE QCD |
| 805 |  | TO IMPORT A WORKLOAD FROM A PRODUCTION SYSTEM |
| 806 |  | TO SELECT AN EXISTING WORKLOAD |
| 807 |  | TO SET/RESET THE INDEX ANALYSIS PARAMETERS |
| 808 |  | TO START INDEX ANALYSIS |
| 809 |  | <u>TO PERFORM "WHAT-IF" ANALYSIS</u> |
| 810 |  | <u>TO RESTART INDEX ANALYSIS FROM A CHECKPOINT</u> |
| 811 |  | TO DISPLAY SUMMARY INFORMATION |
| 812 |  | TO VALIDATE THE INDEXES |
| 813 |  | TO SCHEDULE THE CREATION OF INDEXES |
| 814 |  | TO VIEW THE HELP CONTENTS |
| 815 |  | TO GUIDE THE USER HOW TO USE HELP |

FIG. 21

500

Define Workload

?

X

DBQL Search Criteria

User Name:

Account Name:

Start Time:

End Time:

Row Count:

I/O Count:

Frequency:

Statement Text:

503

Browse DBQL

DBQL Statements

502

| Selected | Frequency | Statement Text |
|----------|-----------|----------------|
| | | |

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▶

Workload Name:

Select All

Deselect All

OK

Cancel

FIG. 22

510

Define Workload [?] [X]

SQL Statements

sel * from dbc.dbcinfotbl;

Frequency: 512

513

Selected Statements

Workload Name: 514

| Frequency | Statement Text |
|-----------|----------------------------|
| 1 | sel * from dbc.dbcinfotbl; |
| | |

FIG. 23

520

? X

Define Workload

QCD Statements

QCD Name:

Query Id:

Query Tag:

524

522

| Select | Query | Frequ | Statement Text |
|-------------------------------------|-------|-------|--|
| <input checked="" type="checkbox"/> | 19 | 1 | Insert explain into tiwizqcd sel * from query,rela |
| <input checked="" type="checkbox"/> | 17 | 1 | Insert explain into tiwizqcd sel * from query;;; |
| <input type="checkbox"/> | 15 | 1 | sel * from query,relation where query.queryid = |
| <input checked="" type="checkbox"/> | 13 | 1 | sel * from query,relation ,workload;;; |
| <input type="checkbox"/> | 32 | 1 | sel * from query,relation where relation.relation |
| <input checked="" type="checkbox"/> | 11 | 1 | sel * from query,relation where query.queryid = |
| <input checked="" type="checkbox"/> | 9 | 1 | sel * from query,relation ,workload where quer |
| <input type="checkbox"/> | 30 | 1 | sel * from query;;; |
| <input type="checkbox"/> | 28 | 1 | Insert explain into TIWizQCD sel * from relatio |

Workload Name:

FIG. 24

530

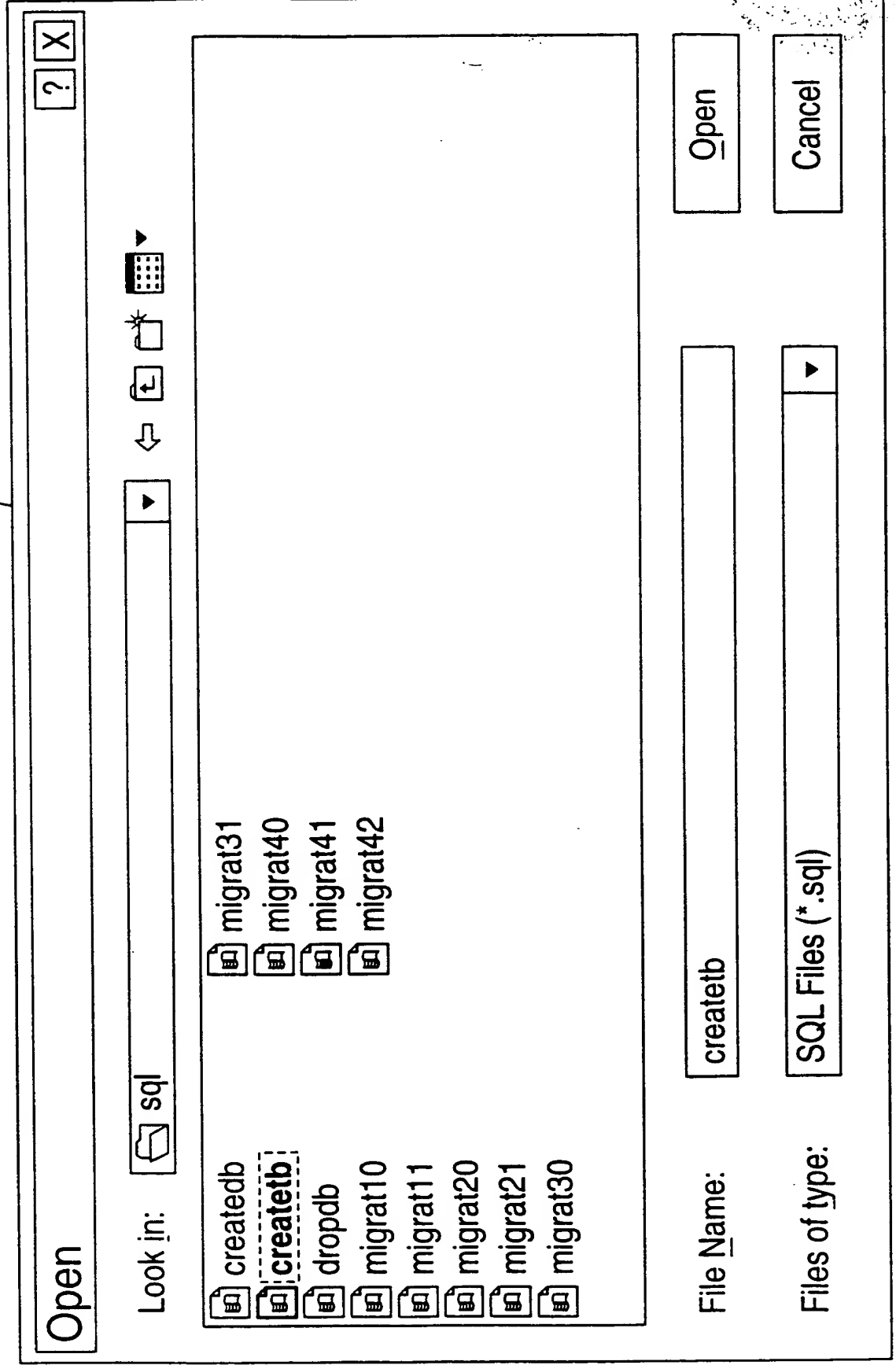


FIG. 25

540

Define Workload ? X

Select SQL Statements 542

| Selected | Frequency | Statement Text |
|-------------------------------------|-----------|---|
| <input checked="" type="checkbox"/> | 1 | SELECT DISTINCT t_2.t_2_c_2- t_ |
| <input type="checkbox"/> | 1 | SELECT NULLIF (t_4.t_4_c_3 |
| <input checked="" type="checkbox"/> | 1 | DELETE FROM t_4 WHERE NO |
| <input checked="" type="checkbox"/> | 1 | DELETE t_1 WHERE NULLIF (t_1 |
| <input type="checkbox"/> | 1 | INSERT INTO t_2 (t_2.t_2_c_1 , t_2. |
| <input checked="" type="checkbox"/> | 1 | UPDATE t_1 FROM t_5, t_2, t_3 SET |
| | | |

◀ ▶

Workload Name:

FIG. 26

550

Existing Workload

?
X

Workload Statements

QCD Name: TIWizQCD ...

Workload Name: MyWorkload ▼

| State | Frequ | Statement Text | ▲ |
|-------|-------|-----------------------|---|
| 1 | 1 | sel * from query;; | |
| 2 | 1 | sel * from relation;; | ▼ |

◀
▶

Workload Status

| Recommend | Index Tag | Validate Sy | Validate Ti | Validate Q | Recom | ▲ |
|-----------|-------------|-------------|-------------|------------|-------|---|
| 2 | myindextag | deepika | 7:43.670000 | tiwizqcd | NONE | |
| 1 | MyIndexT ac | deepika | 7:43.670000 | tiwizqcd | NONE | |
| 2 | myindextag | deepika | 7:43.670000 | tiwizqcd | NONE | ▼ |

◀
▶

Modify Options

☐ Qcd Statements

☐ Query Text

Modify

OK

Cancel

Existing Workload

?

X

Workload Statements

QCD Name:

TIWizQCD

...

Workload Name:

MyWorkload

| Selec | State | Frequ | Statement Text |
|-------------------------------------|-------|-------|-----------------------|
| <input checked="" type="checkbox"/> | 1 | 1 | sel * from query;; |
| <input type="checkbox"/> | 2 | 1 | sel * from relation;; |

Workload Status

| Recommend | Index Tag | Validate Sy | Validate Ti | Validate Q | Recom |
|-----------|-------------|-------------|-------------|------------|-------|
| 2 | myindextag | deepika | 7:43.670000 | tiwizqcd | NONE |
| 1 | MyindexT ac | deepika | 7:43.670000 | tiwizqcd | NONE |
| 2 | myindextag | deepika | 7:43.670000 | tiwizqcd | NONE |

Modify Options

☐ Qcd Statements
 ☐ Query Text

New Workload Name:

559

Update

550A

552A

558

OK

Cancel

FIG. 27

FIG. 28

560

Index Analysis Parameters

Index Analysis Inputs

☒ Keep existing indexes

Maximum Columns per Index: 4

Maximum Indexes per Table: 16

Index Search Space: 256

Change Rate Threshold: 5

OK Set Defaults Cancel

FIG. 29

570

Index Analysis

?

X

Workload Statements

572

| Statement Id | Frequency | Statement Text | |
|--------------|-----------|---|--|
| 3 | 1 | sel * from query,relation where relation.relationid | |
| 1 | 1 | sel * from query;; | |
| 2 | 1 | sel * from relation;; | |

Select Tables

574

| Selected | Database Name | Table Name | Access |
|-------------------------------------|---------------|------------|--------|
| <input checked="" type="checkbox"/> | tiwizqcd | QUERY | 3 |
| <input checked="" type="checkbox"/> | tiwizqcd | RELATION | 2 |

Select AllDeselect All

Restart Parameters

Index Tag: Checkpoint Frequency:

Save Options

☐ Save Recommendations in Files☐ Save Execution Plans in Files

OK

Cancel

FIG. 30

580

Restart Index Analysis [?] [X]

Restart parameters

QCD Name: TIWizQCD

Workload Name: MyWorkload ▼

Index Tag: MyIndexTag ▼

Save option

☒ Save Recommendations

☐ Save execution plans

OK Cancel

FIG. 31

What-If Analysis

Workload Details

QCD Name: tiwizqcd

Workload Name: MyWorkload

Index Tag: MyIndextag

View Recom...

View Report...

| Stateme | Frequen | Statement Text |
|---------|---------|---|
| 1 | 1 | sel * from query;; |
| 2 | 1 | sel * from relation;; |
| 3 | 1 | sel * from query,relation where relation.relationid = query |

Analysis

DDL Text: CREATE INDEX index_5 (TableName) on Relation;

Add ->

Rem

Rem All

Selected DDL Statements:

Statement Text

COLLECT STATS Relation INDEX inde

COLLECT INI

COLLECT STATS Relation INDEX inde

COLLECT INDEX index_5 (TableName)

View Statement

View Graph

Analyze

Browse...

Conclusion: An overall improvement of 31.34 in the performance of the system

OK

Compare...

Cancel

FIG. 32

620

Index Recommendation Report

Index Recommendation Report

QCD Name: tiwizqcd

Workload Name: myworkload

Index Tag: myindextag

| Table Name | Index Tag | Index T... | Size(KB) | Time Esti... | Index DDL | Stats DDL |
|------------|------------|------------|----------|--------------|-----------------|---------------|
| QUERY | MyIndextag | USI | 10.00 | 59.00 | CREATE INDEX... | COLLECT STATS |
| RELATION | MyIndextag | USI | 10.00 | 59.00 | CREATE INDEX... | COLLECT STATS |
| RELATION | MyIndextag | USI | 10.00 | 59.00 | CREATE INDEX... | COLLECT STATS |

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▶

622

FIG. 33

630

Existing Indexes Report

Existing Indexes Report

QCD Name: TIWizQCD Workload Name: myworkload Index Tag: MyIndexTag

| Table Name | Index Name | Index Type | Columns |
|------------|----------------|------------|-------------|
| QUERY | PK_QueryID | P | QueryID |
| RELATION | PK_RelationKey | P | RelationKey |

632

FIG. 34

640

Query Cost Analysis Report

Query Cost Analysis Report

QCD Name: TIWizQCD

Workload Name: myworkload

Index Tag: MyIndexTag

| Query Type | Cost(with existing i... | Cost(with recommended... | Percentage Cha... | Query Text... |
|------------|-------------------------|--------------------------|-------------------|-----------------------------|
| SELECT | 100.00 | 50.00 | 100.00 | sel * from query,relation w |
| SELECT | 100.00 | 50.00 | 100.00 | sel * from query;; |
| SELECT | 100.00 | 50.00 | 100.00 | sel * from relation;; |

◀

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642

FIG. 35

650

Update Cost Report

Update Cost Report


QCD Name: MyTextQCD Workload Name: MyWorkload Index Tag: Index1

| Table Name | Indexes | Update Cost |
|------------------|---------|-------------|
| No rows returned | | |



652

FIG. 36

660




Disk Space Analysis Report




Disk Space Analysis Report

QCD Name: TIWizQCD Workload Name: myworkload Index Tag: MyIndexTag

| Table Name | Index Name | Size(KB) |
|------------|------------|----------|
| QUERY | MyIndextag | 10.00 |
| RELATION | MyIndextag | 10.00 |
| RELATION | MyIndextag | 10.00 |





662

FIG. 37

670

Table Usage Report

QCD Name: TIWizQCD

Workload Name: myworkload

Index Tag: MyIndexTag

Table Usage Report

| Table Name | Access Count | Statement Text |
|------------|--------------|--|
| QUERY | 1 | sel * from query,relation where relation.relationid = query.queryid and query.qu |
| RELATION | 1 | sel * from query,relation where relation.relationid = query.queryid and query.qu |
| QUERY | 1 | sel * from query;; |
| RELATION | 1 | sel * from relation;; |

672

680

682

FIG. 39

690

Summary Report

Summary Report

QCD Name: TIWizQCD

Workload Name: myworkload

Index Tag: MyIndexTag

| Table Name | Index Name | Index DDL | Stats DDL |
|------------|------------|--|--------------------------|
| QUERY | MyIndextag | CREATE INDEX index_3 (QueryText) on Query; | COLLECT STATS Query IND |
| RELATION | MyIndextag | CREATE INDEX index_4 (name) on Relation; | COLLECT STATS Relation I |
| RELATION | MyIndextag | CREATE INDEX index_4 (name,TableName) o... | COLLECT STATS Relation I |

692

FIG. 40

700

| Table Scan Report | | | | | | |
|--------------------|------------|-------------|---------------------------|---------------|---|--|
| Table Scan Report | | | | | | |
| QCD Name: tiwizqcd | | | Workload Name: myworkload | | | |
| Owner | Table Name | Cardinality | AMPs Retrieves... | Geograph... | Statement Text | |
| tiwizqcd | QUERY | 45.00 | All AMP Retrieve | built locally | sel * from query,relation where query.que | |
| tiwizqcd | QUERY | 45.00 | All AMP Retrieve | built locally | sel * from query,relation, workload where | |
| tiwizqcd | QUERY | 45.00 | All AMP Retrieve | built locally | sel * from query,relation, workload;; | |
| tiwizqcd | RELATION | 282.00 | All AMP Retrieve | built locally | sel * from query,relation where query.que | |
| tiwizqcd | RELATION | 282.00 | All AMP Retrieve | built locally | sel * from query,relation, workload where | |
| tiwizqcd | RELATION | 282.00 | All AMP Retrieve | built locally | sel * from query,relation, workload;; | |
| tiwizqcd | WORKLOAD | 2.00 | Single AMP Retr... | built locally | sel * from query,relation, workload where | |
| tiwizqcd | WORKLOAD | 2.00 | All AMP Retrieve | built locally | sel * from query,relation, workload;; | |
| | | | | | | |
| | | | | | | |

FIG. 41

710

? X

Workload Clean Up

Workload Statements

QCD Name:

TIWizQCD

...

Workload Name:

MyWorkload

▼

| State | Frequ | Statement Text | ▲ |
|-------|-------|-----------------------|---|
| 1 | 1 | sel * from query;; | |
| 2 | 1 | sel * from relation;; | ▼ |

◀
▶

Workload Status

| Select | Recommend | Index Tag | Validate Sy | Validate Ti | Validate Q | ▲ |
|-------------------------------------|-----------|-------------|-------------|-------------|------------|---|
| <input checked="" type="checkbox"/> | 2 | myindextag | deepika | 7:43.670000 | tiwizqcd | |
| <input checked="" type="checkbox"/> | 1 | MyIndexT ac | deepika | 7:43.670000 | tiwizqcd | |
| <input checked="" type="checkbox"/> | 2 | myindextag | deepika | 7:43.670000 | tiwizqcd | ▼ |

◀
▶

Delete Options

☐ Delete Workload
☐ Delete Plans

☒ Delete Analysis

Delete

OK

Cancel

FIG. 42

730

Load Recommendations [?] [X]

☒ Load Recommendations from QCD

☐ Load Recommendations from file

TIWizQCD,MyWorkload 732 **Browse...**

734 **OK** **Cancel**

FIG. 43

740

Load Recommendations Details [?] [X]

QCD Name: TIWizQCD

Workload Name: MyWorkload ▼

Index Tag: myindextag ▼

742 **OK** **Cancel**

FIG. 44

750

Index Validation

Validate Indexes

Select indexes to be validated: 752 ☒ Validate on another system

| Sele | Table | Index | Index | Columns | Index DDL | |
|-------------------------------------|-------|-------|-------|------------|-------------------------------|---|
| <input checked="" type="checkbox"/> | QUER | MyInd | | Query Text | CREATE INDEX index_3 (Query T | ▲ |
| <input checked="" type="checkbox"/> | RELA | MyInd | | name | CREATE INDEX index_4 (name) o | |
| <input checked="" type="checkbox"/> | RELA | MyInd | | TableName | CREATE INDEX index_4 (name T | ▼ |

◀
▶

Select All

Deselect All

View DDL...

Validate

Validation Results

758

| Table Name | Index Name | % Sample on which statistics were collected | |
|------------|------------|---|---|
| QUERY | | 10 | ▲ |
| RELATION | | 10 | |
| RELATION | | 10 | ▼ |

◀
▶

Conclusion: An overall improvement of 38.24 in the performance of the system

Compare Options:

Compare on same system ▼

View Graph

OK

Compare...

Cancel

762

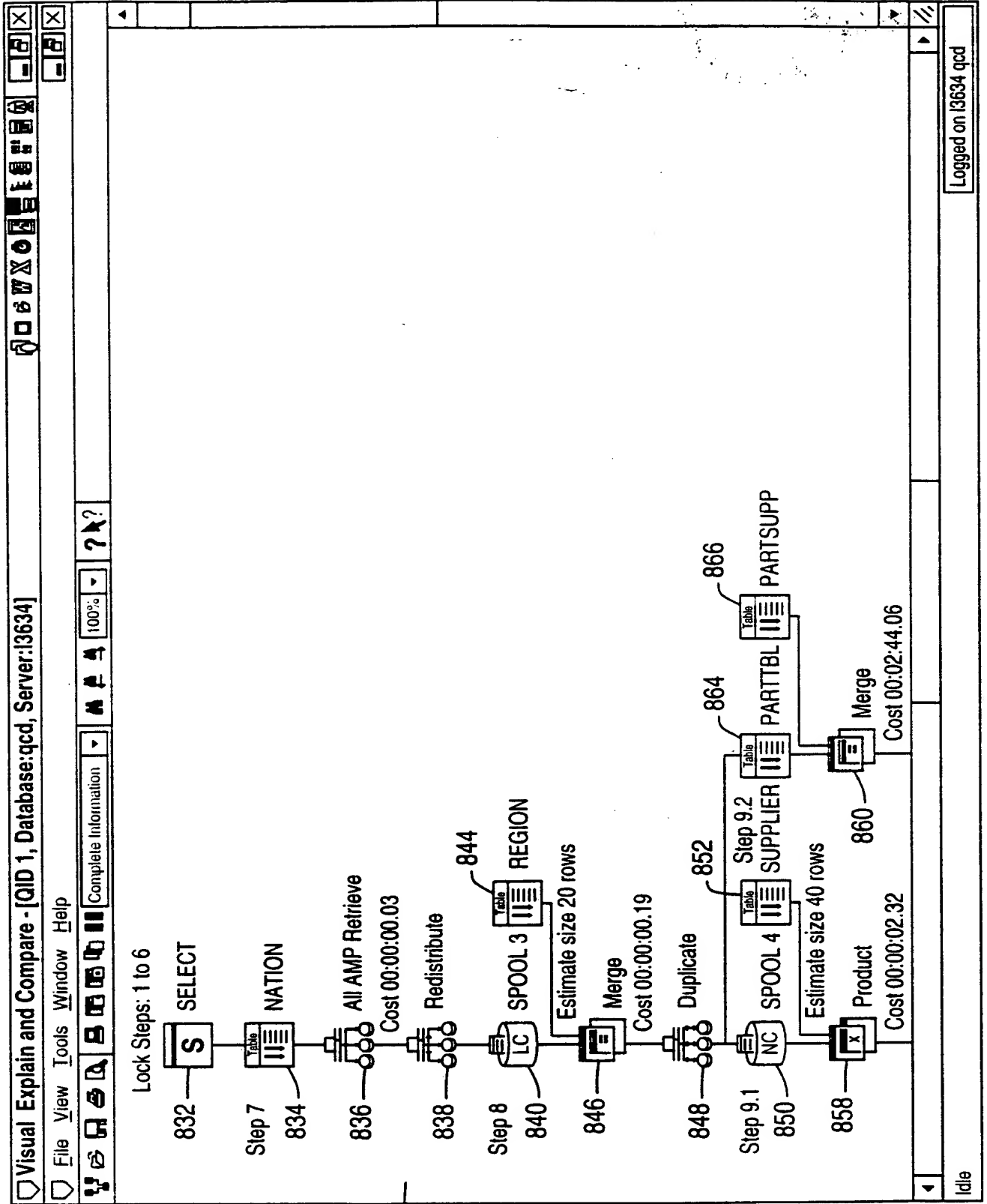


FIG. 45

830 —

FIG. 46

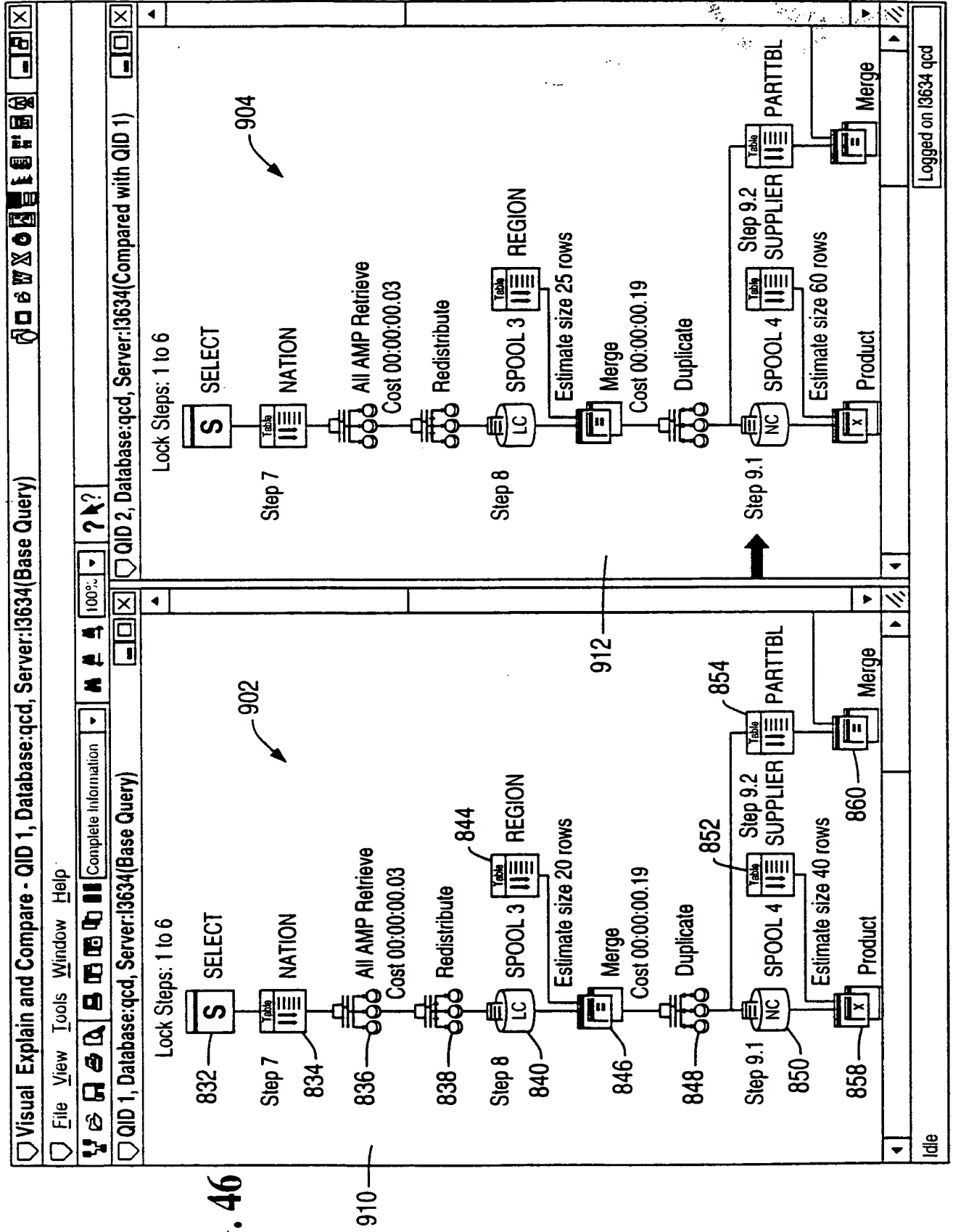


FIG. 47

